

CLAIMS

1. A method of manufacturing a bond magnet, wherein:
an alloy magnetic powder magnetized in advance is mixed with a resin to obtain a viscous material, and
a magnetic field is applied to the viscous material to magnetically orient the alloy magnetic powder included in the viscous material while the resin is hardened.
2. The method of manufacturing a bond magnet according to claim 1, wherein:
the viscous material is arranged at a predetermined position of a magnetic device in contact therewith, and
the magnetic field is applied to the viscous material arranged in contact with the magnetic device to magnetically orient the alloy magnetic powder included in the viscous material while the resin is hardened,
thereby forming the bond magnet at the predetermined position of the magnetic device in contact therewith.
3. A method of manufacturing a bond magnet according to claim 1 or 2, wherein:
before the alloy magnetic powder is mixed with the resin, the alloy magnetic powder is mixed with at least one metal powder selected from Zn, Al, Bi, Ga, In, Mg, Pb, Sb, and Sn or a metal powder of an alloy thereof to obtain a mixture, and
the mixture is subjected to heat treatment to coat the surface of the alloy magnetic powder with a metal film.
4. The method of manufacturing a bond magnet according to any one of claims 1 to 3, wherein
as the alloy magnetic powder, a rare earth magnetic powder having a coercive force not smaller than 5 kOe, a Curie temperature not lower than

300°C, and an average particle size of 2.0 to 50 μm is used.

5. The method of manufacturing a bond magnet according to any one of claims 1 to 3, wherein

as the alloy magnetic powder, a rare earth magnetic powder having a coercive force not smaller than 10 kOe, a Curie temperature not lower than 500°C, and an average particle size of 2.5 to 50 μm is used.

6. The method of manufacturing a bond magnet according to claim 5, wherein:

as the alloy magnetic powder, a rare earth magnetic powder having a composition of $\text{Sm}(\text{Co}_{\text{bal.}}\text{Fe}_{0.15-0.25}\text{Cu}_{0.06-0.08}\text{Zr}_{0.02-0.03})_{7.0-8.5}$ is used.

7. The method of manufacturing a bond magnet according to any one of claims 1 to 6, wherein:

as the resin, one of a polyimide resin, an epoxy resin, a polyphenylene sulfide resin, a silicone resin, a polyester resin, an aromatic nylon, or a liquid-crystal polymer is used.

8. A bond magnet manufactured by the method according to any one of claims 1 to 7.

9. A magnetic device including the bond magnet according to claim 8.

10. A method of manufacturing a magnetic device including a bond magnet, wherein:

the bond magnet is formed by:

mixing an alloy magnetic powder and a resin to obtain a viscous material;

arranging the viscous material at a predetermined position of the magnetic device in contact therewith; and

applying a magnetic field to the viscous material to magnetically orient the alloy magnetic powder included in the viscous material while the resin is hardened,

thereby forming the bond magnet at the predetermined position in contact therewith.

11. The method of manufacturing a magnetic device including a bond magnet according to claim 10, wherein:

the predetermined position is a pair of surfaces opposite to each other and defining a magnetic gap, and

the viscous material is arranged in the magnetic gap to bring the viscous material into contact with both of the surfaces.

12. The method of manufacturing a magnetic device including a bond magnet according to claim 10, wherein:

the predetermined position is an end surface of a drum-type core or an outer peripheral surface of a flange portion, and

the viscous material is applied in a ring shape on the end surface or the outer peripheral surface of the flange portion.

13. A magnetic device manufactured by using the method according to any one of claims 10 to 12, wherein the bond magnet is fixed to the predetermined position in tight contact without using an adhesive.